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ABSTRACT

This booklet focuses on state regulations of gas, electricity, water, and telephone services. Section 1 describes the basic steps in a rate case, procedures followed, and key terms used in explaining these processes. Included information highlights preparing and tracking a rate case in terms of: (1) preliminary events; (2) the staff's position and hearings; (3) a commission's decision; and (4) appeals' procedures. Section 2 contains a brief history of U.S. utility regulations and the rationale behind the concept of regulation. Section 3 explains: (1) how rates charged to a customer are determined; (2) regulatory, financial, and accounting concepts; and (3) major issues that lead to rate case disputes. Section 4 contains an assessment of various factors involved in the ratemaking process. (JHP)

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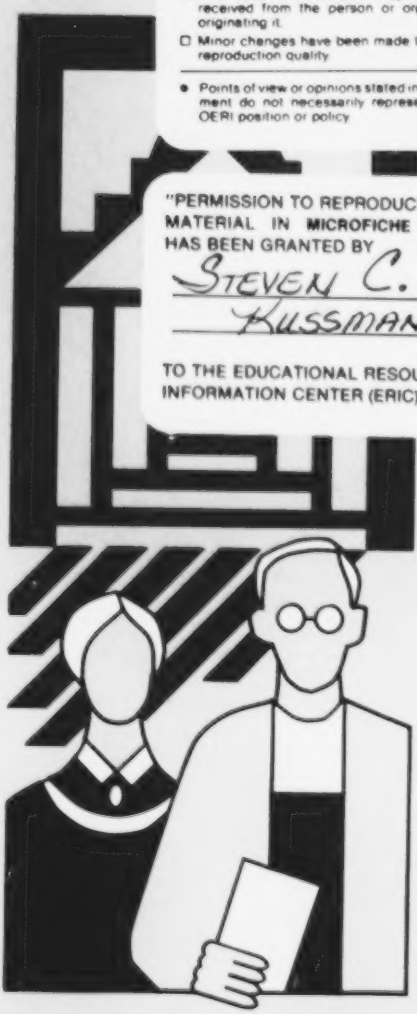

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The Purpose of This Booklet

Utility rate changes are news. They ought to be. They affect everybody's pocketbook. And because this is so, they usually generate considerable controversy. The intent of this booklet is to explain how utility rates are made — how a typical rate cause is prepared, how it is presented, and what the key issues in a rate case are likely to be. It is intended as a guide to the many technical terms and concepts that are involved in utility ratemaking.

The focus of this booklet is almost exclusively on **state regulation.** Utilities — be they suppliers of gas, electricity, water or telephone services — are subject to a wide range of **federal regulations,** as are all business enterprises. However, it is the state regulators who must approve the rates utilities charge and it is state regulation that most people are interested in.

In some states, the state regulatory authority may be called a **public utilities commission.** Elsewhere, it may be a **public service commission.** And, in a few cases, a **corporation commission.** By whatever name, however, the commission's function is the same. It is charged by law with ensuring that consumers receive adequate and reliable services at reasonable rates while, at the same time, allowing the utility to earn a return on its investment that is sufficient to maintain its credit and enable it to continue raising the capital necessary to provide satisfactory service in the future.

It is important to note, however, that a regulatory authority does not **guarantee** a utility a profit. It simply gives a utility an **opportunity** to make a profit. If, because of inflation or for other reasons, the utility fails to achieve the authorized rate of return (its authorized level of profitability), so be it. The utility may go back to the commission with a new rate case, but it may not recover what it failed to earn in a time past.

There are four sections to this book:

- The first section describes the basic steps in a rate case, the procedures followed and the key terms used in describing these procedures.
- The second section is a brief history of utility regulation in the United States and the rationale behind regulation.
- The third section is the most complicated one. It explains how the actual rates charged to a consumer are determined, what some of the regulatory, financial and accounting concepts are, and what the big arguments in most rate cases are usually about.
- The fourth section is a statement of the position of the utilities: an assessment of the many factors involved in the ratemaking process.

I. Preparing a Rate Case: The Need; The Test Year

Like any other business, a utility constantly assesses its financial position. Are prices adequate? Have there been major changes in costs or in sales that necessitate more revenue? If the answer to the first question is "No," and to the second question "Yes," the utility must petition a state regulatory body for permission to change its rates.

When a utility concludes that it must seek a rate change, its management begins preparing a **rate case.** The utility must base its case on a **test year** — normally, the previous year. This is a specific 12-month period in which expenses actually experienced are documented and used to demonstrate the company's need for an adjustment in its rates.

It is important to be familiar with the test-year concept. Assume, for a moment, that a company has decided to file with the commission in the spring of 1986. It would take calendar year 1985 as the test year with which to establish its cost of providing service. The company usually has 120 days after the end of the test-year period in which to prepare its case. And it needs it. A lot of data is required, and half of the information won't become available until the company closes its books for calendar 1985, around the middle of February 1986. From that point onward, right up to the filing deadline, the company's accountants, rate people and attorneys are busy detailing numbers and assembling evidence.

Preparing a Rate Case: Book Numbers and Adjusted Ones

In general, most rate cases are straightforward proceedings based on hard economic data taken chiefly from the company's books. These **book** figures represent costs that have been experienced. They may be checked easily, since all utilities are required to keep their books in accordance with a uniform system of accounting.

However, for the purposes of the rate case, **adjustments** may be made in the book figures. For example, the total

labor cost for the 12-month test period may not be representative of what costs will be in the next 12 months. If total labor costs during the test year were $5 million, but a wage increase of 15 percent was in effect only for the last half of the year, labor costs must be **annualized** — or restated to reflect the increase for the full 12-month period. Otherwise, true labor costs would be understated.

Annualization is only one of many types of adjustments that may be necessary. An unusual **nonrecurring cost** — for example, the cost of repairing damage from a flood or an unusually severe ice storm — would be eliminated from test-year costs, since such an event can't be assumed to occur every year. Eliminating nonrecurring costs is one example of what is called **normalization.** Another example: If the weather in a gas utility's region was unusually cold in the test year, the company's book numbers would reflect the increased revenues from and the extra expense of selling more than the usual volumes of gas. For the rate-case purposes, the costs and revenues will be normalized — that is, they will be adjusted as if the test-year weather had been normal.

Tracking a Rate Case: The Preliminary Events

Well before a rate filing, a utility will usually give public notice of its intention to seek a change in its rates. This may or may not be required by law. But in practice utilities make sure that their intentions are known, not only to the regulatory commission, but also to their customers and to the public.

When a petition for a rate change is filed, it triggers a series of events and actions. First, the **commission staff** reviews the application. Almost always, it sends out **interrogatories,** asking for clarification or requesting supplementary information. The staff also may conduct a field investigation of the company and its operations.

Next, if the state has an official consumer advocate, the utility can expect a batch of inquiries from that office. And finally, consumer groups — some representing residential customers and others representing large industrial and commercial customers of the utility — make requests for information. The utility must respond to all. And with a commission's permission, consumer groups and others may become **intervenors** in a rate case, with the right to present evidence and question witnesses.

In most proceedings, customer groups, the commission staff and others urge **suspension,** or postponement, of the rate change. As a practical matter, a commission will usually postpone the date on which a proposed utility rate takes effect. These suspensions, which may last as long as five to 11 months, give the commission more time to thoroughly examine the proposal.

In many states, new rates filed by a utility must, by law, go into effect without commission action if the commission has been too busy to meet a statutory deadline for acting on the rate request — even with the suspension. If that happens and the utility has requested a rate hike, the company puts its new rates into effect, **subject to refund.** If the commission's final action fails to sustain the full increase filed by the company, the extra revenues are refunded to the customers with interest. When news stories appear about utilities being **ordered to make refunds,** they very often involve this kind of situation.

Under some circumstances, a utility may be granted an **interim** or **emergency** rate increase, representing either a portion of the amount or the full amount sought. Interim increases usually cover noncontroversial expenses already incurred and easily documented, such as wage increases and social security taxes. Emergency increases may be authorized to prevent irreversible financial hardship to the utility pending the final decision. In either case, revenues collected may be refunded with interest if the commission's final order fails to sustain the increase and the conditions behind it.

Tracking a Rate Case: The Staff's Position and Hearings

When the commission staff has investigated fully a company's application, it issues a **staff report** setting forth the staff's position on the rate request. After this report is published, the company and all intervenors are permitted to file **comments** and **objections.**

There's a lot of room for differences of opinion on rate-case issues, and often a company, a consumer's counsel or a customer group will differ sharply with a commission staff's conclusions. (A commission itself may ultimately take a viewpoint on an issue different from that of its staff.)

Next, the commission assigns a senior staff person to conduct **hearings** and to take evidence. In some states this individual is called an **attorney examiner** or a **hearing examiner,** in others, an **administrative law judge.**

The examiner (or judge) calls a **prehearing conference** to reach agreement on a schedule of dates for the hearings at which company witnesses testify and are cross-examined by staff attorneys and attorneys for the intervenors. (Because of heavy case loads, some commissions also use prehearing conferences to **limit issues** and to **stipulate facts,** where there is agreement. In some cases, prehearing conferences will even be used to negotiate a **settlement proposal** among all the parties to the case. However, the settlement must be approved by the commission.)

Hearings are usually conducted at the state capital. However, many commissions will hold additional hearings in cities served by the utility, making it easier for consumers to

voice their opinions. In big rate cases, local newspapers and radio and television stations cover the local hearings.

After the utility has provided its data and arguments and has been cross-examined, the staff and the intervenors offer their own witnesses who, in turn, are cross-examined by the utility's attorneys.

Usually, this takes a good deal of time, and the result is a lengthy **transcript.**

When all of the evidence has been presented, the examiner reviews the written arguments submitted by the parties. These are called **briefs,** although they usually are anything but brief.

Tracking a Rate Case: The Commission's Decision

When the examiner has finished the review process, he or she prepares a recommendation to the full commission. This includes the examiner's conclusions as to the **total revenue** required to achieve a specified **rate of return** on the utility's investment. The recommendation usually includes a **proposed rate structure** to produce those revenues and the examiner's proposals for resolving any other issues in the case.

Before the commission takes final action, there is an opportunity for all parties to file formal **exceptions.** Seldom is everybody happy with the examiner's findings. Some parts the utility doesn't like. Other parts the intervenors don't like. So there are exceptions, followed by replies to exceptions.

The commission reviews all of these documents — the transcript (or at least those relevant parts of it), the recommendations of the examiner, the exceptions and the replies to exceptions. If the commission wishes to, it may hear additional **oral arguments** from the parties, expanding on major remaining issues.

Finally, the commission issues its decision, usually referred to as **the rate order.** This states the commission's findings on the company's application, including the explanation of the basis for the commission's order.

Tracking a Rate Case: Appeals

But, that may not be the end of it. After the commission has issued its final order, any party in the case has the right to request a **rehearing** by the commission if that party is not satisfied with the order. If a rehearing is granted and any party still is not satisfied with the decision that comes out of the rehearing, an **appeal** may be made to the courts (usually to a state court). Likewise, if a rehearing is denied by the commission, the party requesting it may appeal to the courts. If an appeal is heard, the decision of the state supreme court is final unless review by the U.S. Supreme Court is sought and granted.

II. Some Historical Perspective: The Early Utilities

Before delving further into the subject of regulation, it's worthwhile to take a look at some historical background. Among the earliest utilities were gas companies that were formed in the mid- to late-19th century to supply local communities with so-called "city gas" made from coke. Local electric companies came later, the first of which was Thomas Edison's Pearl Street power station built in New York City in the 1880s. Telephone companies followed in the early 20th century.

These enterprises evolved independently. Each set its own rates and extended service as far as economically worthwhile. But it quickly became evident that a great deal of capital was needed: three to five times as much capital as needed for factories and other industrial enterprises.

Because of these costs, it made no sense, for example, to have two gas utilities serving the same area. But it was apparent, also, that the public would not tolerate uncontrolled monopolies if they grew to any significant size. And so, as utility services grew in importance, and as small local companies merged into larger entities, today's regulatory system evolved.

Some Historical Perspective: The Rationale for Regulation

Whether the utility is a gas distribution company, an electric power company or a local telephone company, it operates today as a **regulated monopoly.** That is, each company is authorized to provide service in a specific geographic area, under an exclusive franchise. In return for this franchise, the utility is regulated by a state authority responsible for ensuring that the public receives good and reliable service at a fair price.

III. Focusing on Major Issues: Some Conceptual Background

It's clear that what a regulatory commission must do in every rate case is set a **level of prices** for the utility's services that is fair to the customer and yet allows a reasonable profit for the utility.

Obviously, this can be a difficult process. If a fair price for the customer is to be established, a careful examination of the utility's costs must be made. If a reasonable profit for the company is to be permitted, the commission must first examine how much money the utility has invested in the facilities needed to provide service and then determine what an adequate rate of return on this money is.

It is important to recognize just what profit is and is not in this context. In the utility business, profit is not a markup on sales. Instead, it is a return that the utility owners (the shareholders) earn on the money invested over the years to build the utility system. Many people miss this basic point in utility regulation and it bears repeating:

Rates are set so that a utility has the opportunity to earn as a profit an amount of money equal to a percentage (determined by a regulatory commission in a rate case) of the amount of money invested in the facilities used and useful in providing service to the utility's customers.

Focusing on Major Issues: The Areas of Dispute

In almost all rate cases, the crucial issues usually arise in just four major areas. Most disputes involve one or more of these:

1. The size of a utility's **rate base** or **investment base**
2. The treatment of **expenses**
3. The **rate of return** to be allowed on the rate base
4. The **allocation of the cost of service** among **classes of customers** and the **rate design**

Each of these issues requires some fairly technical explanation, but understanding them is important. There is plenty of room for reasonable people to disagree sharply over the resolution of some of these issues in a rate case. And those disagreements are the basis for much of the controversy reported in news stories.

In determining what a utility's rates should be, regulatory commissions invariably consider these four issues, usually in the order listed.

First, the commission tries to determine the size of the **rate base.** That is, it determines how much money the utility has invested over the years in facilities that serve the customers.

As it's doing that, it'll also examine the utility's **operating expenses** in the test year to make sure that those expenses were really relevant to the utility's task of providing services to its customers.

Then, the commission will try to determine what a **fair rate of return** on the utility's investment should be.

The expense, expressed in dollars, and the required return, also expressed in dollars, are then added together. This total is called the utility's **total revenue requirements** or its **cost of service.** It represents the **dollars** the utility will have to collect from anticipated sales in order to pay expenses and earn its allowed rate of return.

Once the dollar figure is determined, the commission goes to step four — rate design. It decides how the rates will be applied to the utility's different types, or **classes,** of customers (residential, commercial and industrial). Basically, it is deciding at this point how much of the total revenue should come from residences, and how much from other kinds of sales and from users of varying sizes.

The utility also goes through all these steps in preparing its application for a rate change. The commission repeats and reviews these steps as part of its regulatory responsibility.

It must be obvious at this point that when utilities file for a new rate, they don't just pick out a revenue number and hope that the regulators will give them some small part of it. Every dollar asked for in a rate-change application is carefully documented as to need. However, utility ratemaking is complex and there's plenty of room in a rate case for reasonable people to disagree.

Focusing on Major Issues: The Rate Case

Let's look in detail at the **rate base.** Unfortunately, that term is misleading to a lot of people. It might be better to call it the **investment base,** because what it specifically includes is (a) the amount of money that the company has invested in facilities to serve the public plus (b) the amount of working capital required to keep the company going.

The numbers for the rate base, or investment base, are

not hard to determine. The cost of a utility's facilities is recorded on its books in accordance with a uniform system of accounting. And computation of required working capital has evolved into several standard formulas. Accordingly, there is little dispute as to that number, either.

However, several principal issues often arise with respect to the rate base.

First: Should the investment in facilities be averaged as of the beginning and the end of the test period, or should only the investment at the end of the test period be used? (Because of rapidly increasing capital costs and the effects of inflation, many commissions now permit the use of year-end investment, rather than the average.)

Second: Should the **original cost** of the facilities (the actual amount paid for them, whether in 1950, 1960 or 1980) be used or should that original cost be adjusted to current **fair value** or to **reproduction cost** to reflect inflation? Fair value is determined by estimating the current value of the facilities. Reproduction cost is defined as the cost of replacing the facilities at today's prices. The overwhelming majority of commissions use original cost in establishing the investment base. Nevertheless, several states require by law that the commission fix a fair value; and a few states use reproduction cost.

Third: In considering the facilities to be included in the rate base, should the investment in partially completed facilities be included? The issue of including **construction work in progress (CWIP)** in the rate base is particularly important on large projects, such as an electric generating station, which may take anywhere from eight to 14 years to complete and bring into service. Most commissions exclude CWIP, arguing that the investment in facilities under construction should not be made a part of the rate base (and thus a source of earnings chargeable to customers) until the facility is actually used in providing utility services.

Many utilities argue, on the other hand, that if they were able to earn a return on a massive project while it is under way, their customers would be better served by these gradual additions to the rate base than by the addition of a very large amount of new rate base in the year in which the plant goes into service.

Fourth: Often there is disagreement over whether a piece of utility property belongs in the rate base at all.

For instance, a gas utility may decide to purchase a large tract of unmined coal with the expectation that someday it will use this coal to produce synthetic natural gas at a coal gasification plant. It might want to have this investment in coal included in the rate base. The utility commission may disagree. It may argue that coal gasification is only a remote possibility and that this coal, therefore, may never be useful to the utility's customers. The argument turns, in part, on an

assessment of the likelihood that the utility will someday build a gasification plant.

Another example: If an electric utility is having technical difficulties with a power plant and the plant has not been productive for a time, consumer groups, a consumers' counsel or a state commission might question whether the property should be included in the rate base. On the other hand, the utility would argue that inclusion in the rate base is appropriate because technical difficulties are a normal part of any business — particularly when a new technology is involved.

It is clear, then, that determining the size of a utility's rate base — determining what should be included in it at any given time and determining how it should be computed — is crucially important both to a utility and to its customers. The customers and the public utility regulators have an obvious interest in seeing that all the investments a utility makes in property are prudent and are for facilities that will be useful in serving the customers.

The tests for "prudence" and "used and useful" are basic principles of utility regulation in this country. Utility managements do not disagree with it and scrupulously seek to ensure that their property additions are the kind that will be allowed in the rate base. Otherwise, they would not be able to earn a return on all of the shareholder money and borrowed money invested to build the facilities, a situation that would affect their financial standing and make it relatively more difficult for them to acquire capital in the future.

Focusing on Major Issues: Expenses

While a utility commission is examining a utility's rate-base calculations and assumptions during the course of a rate case, it also will examine the utility's **expenses.** These expenses are the costs during the test year of wages and benefits for employees, maintenance, advertising and promotion, customer services, materials and supplies, fuel, administration of the company, taxes, depreciation, and so on.

Generally speaking, a regulatory commission cannot under the law prohibit a utility from making an operating expenditure. However, if it doesn't **approve** an expenditure, it can prevent the utility from recovering the expense through its rates. In other words, it can tell the utility that the expense won't be included when it adds up all the expenses that go into the utility's revenue requirements. When that happens, the utility must absorb the disallowed expense out of what would otherwise be profits, or shareholders' return on investment.

There are many kinds of expenditures and many kinds of disagreements over them, although all expenses are easily documented and some are rarely challenged. Wages and benefits for unionized personnel are set through collective bargaining and generally not challenged. Compensation for

management isn't usually questioned if it is within the bounds of what other types of companies must pay for management. Customer service costs, meter-reading costs, maintenance costs and the like also receive little argument.

Among the expenses that frequently have been challenged in recent years are those for advertising. Although advertising costs are usually a minor part of a utility's expenses, they are highly visible and thus sensitive. Utility customers, especially in those situations in which they are facing rising bills, often object vehemently to utility advertising. As a result, some commissions have disallowed certain advertising expenses in recent years. Disagreements also occur over a utility's charitable contributions. Commissions allow these in some cases on the theory that a utility must play a good corporate citizenship role in its community and make a certain amount of charitable contributions. Consumers argue, though, that such charitable contributions should not be passed on to them as an allowable expense.

Tax costs are a very large element in the costs of providing utility service, and they also can be the cause of considerable disagreement.

The largest tax costs are state and local taxes, such as property taxes, franchise taxes and gross receipts taxes. (Generally speaking, 10 percent to 15 percent of a utility bill goes to state and local taxes.) While these taxes may require adjustment for rate-case purposes if there has been a change in tax rates or tax assessments during a test year, there is usually no dispute over these taxes.

The key disputes usually arise in the area of income taxes. That's because Congress decides what expenses are allowable for tax purposes. Regulatory commissions may have different ideas as to what is right or proper, so some expenses deductible for tax purposes may not be allowable for rate purposes. Moreover, Congress often uses tax policy to encourage changes in the economy, but regulatory commissions and utilities may disagree sharply over how those tax provisions should be accounted for in determining rates.

It should be understood that in a rate proceeding, taxes — including income taxes — are treated as an expense, as a part of the cost of providing service to the customer.

In the case of income taxes, they are computed after the commission determines the return (profit) the company is allowed. The purpose of the computation is to include taxes that must be paid if that return (profit) is to be realized after taxes.

One of the least understood and sometimes bitter points of public contention regarding utility expenses in recent years has been in the area of **fuel costs.** As energy costs rose rapidly in the 1970s and early 1980s, the effect on gas and electric utilities was profound, since both obviously purchase great amounts of fuel.

For a gas utility, for instance, the cost of purchasing gas in

the early 1980s could run as high as 60 percent to 80 percent of its total expenses.

Because fuel costs had become such a large component of total costs and any rapid increase in fuel costs, if not recovered quickly, could wipe out utility earnings, many commissions responded by establishing special rate mechanisms called **fuel cost adjustments** (sometimes, in the case of gas utilities, **purchased gas adjustments**).

Since the special adjustments reflect the cost of fuel only and not the other expenses associated with operating the utility system, the utilities may use these mechanisms to alter their rates up or down, without initiating a lengthy general rate proceeding.

Now that energy prices are declining, the adjustment mechanisms have proved particularly useful for gas and electric utilities, by allowing them to immediately pass on to their customers the savings in fuel costs.

These adjustment clauses are strictly administered by the commissions, and can be documented and reviewed with precision. There's not much ambiguity in their administration.

Focusing on Major Issues: The Rate of Return

Without exception, every utility rate case eventually centers on one fundamental question: What **rate of return** will the utility be allowed? Rate of return is basically a very simple concept: If someone makes a loan of $100 for one year and receives back $100 plus $12 for the use of the money, the rate of return on that loan is 12 percent.

In utility ratemaking there are two kinds of rates of return that are important. One is the **total rate of return,** which is applied to the rate base. The other is the **return on equity,** one of the factors in determining the utility's total return.

Return on rate base, or **total return,** is the broader measure of a utility's rate of return. The facilities represented in the rate base have been purchased with money the utility has raised from its shareholders, retained from its earnings, or borrowed. The return on rate base, then, must include enough money to pay the interest costs on the borrowed money plus enough money to pay the shareholders for the use of their money.

The return on equity is the return allowed on stockholders' investment. It is the utility's profit, or net increase, expressed as a percentage of that portion of a utility's total investment provided by the utility's shareholders through the purchase of stock and through **retained earnings.**

The total return includes the return on equity. Because the rate of return on equity relates directly to the interest of stockholders, this is the profitability figure that's most important to stockholders and to the investment community.

Some Vital Background: Equity Capital, Debt Capital and Other Accounting Terms

To understand rate of return a little better, it's necessary to understand in a little more detail where the money that a utility has invested in its facilities comes from. The money invested in facilities is called **capital,** and a distinguishing characteristic of all utilities — be they gas, electric, water or telephone — is that they are **capital intensive.** Generally speaking, this means that, in relation to annual revenues, it takes a comparatively large amount of money to build a utility system. In the electric utility industry, for example, about $4 worth of investment in facilities is required for each $1 of electricity sold. This compares with 86 cents of investment in steel mills needed for each $1 of steel sold and 57 cents of investment needed in the auto industry for each $1 of automobiles sold.

Clearly, then, it is necessary for utilities to raise large sums of money to finance the facilities needed to provide service. This money comes from **equity** and from **debt.**

Debt, or **debt capital,** is borrowed money. A utility will sometimes borrow money directly from banks, particularly when it plans to pay the money back quickly (this is **short-term debt**.) Most utility borrowings, however, are **long-term debt** and paid back over periods of 20 years or more. When a utility borrows money long-term, it usually does so by selling **bonds** to the public. There are two types of bonds. **Mortgage bonds** are used when the debt is to be secured by the utility's property. In this sense they are like the familiar home mortgage, where the debt used to buy a house is secured by the house. Utilities also may borrow money long-term through **debenture bonds,** or debentures, which are secured by the general credit-worthiness of the utility, rather than by specific properties.

Debt is very important to utilities. As much as 45 percent or more of a utility's capital may be debt capital. In other words, as much as 45 percent or more of the money used to build facilities is borrowed.

Equity, as defined earlier, is the other part of a utility's capital — the part contributed by owners of the company's stock. This money is contributed in two ways. In one, shareholders contribute capital to the company when they buy a **new issue** of the utility's stock. The money a utility raises from selling new stock will normally go directly into building new facilities. (When stock prices are high, utilities often raise money through new issues.)

Shareholders also contribute equity capital through what are called **retained earnings.** When a utility earns profits, its board of directors, which represents the shareholders, may do two things with those profits: pay them out directly to the shareholders as **dividends** on their stock or retain the earnings, usually using them to buy new facilities and

equipment. Often, utilities will retain as much as 40 percent of their profits to help pay for new facilities.

There is a common misconception about retained earnings that's worth noting. Retained earnings, when added up over the years and put into a utility's financial reports, can represent many millions of dollars (sometimes, in a large utility, more than a billion) and many people unfamiliar with accounting terms assume that this means a company has those dollars put away somewhere and that they're available for use. Not at all. As a practical matter, a comparatively high level of retained earnings at a utility means simply that the company's board of directors has chosen to take a comparatively high share of the profits and reinvest them in new facilities to serve the customer, rather than paying out these profits as dividends to shareholders.

Focusing on Major Issues: Determining a Reasonable Return

In the final analysis, then, what is a fair and reasonable rate of return for the utility?

There are numerous theories put forth by economists and regulators as to what constitutes a fair rate of return for utilities, but, as a practical matter, most utility commissions find their answer by looking to the financial marketplace. They try to determine the utility's **cost of capital,** or what it costs the utility to obtain capital from lenders and from shareholders.

In this, they are guided by the ground rules set forth by the U.S. Supreme Court.

"A public utility is entitled to such rates as will permit it to earn a return on the value of its property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties; but it has no constitutional right to profits such as are realized or anticipated in highly profitable enterprises or speculative ventures.

"The return should be reasonably sufficient to assure confidence in the financial soundness of the utility, should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise money necessary to the proper discharge of its public duties. A rate of return may be reasonable at one time, and become too high or too low by changes affecting opportunities for investment, the money market, and business conditions generally." **Bluefield Waterworks & Improvement Company v. Public Service Commission of W. Va.** 262 U.S. 679 (1923)

Two things stand out in that decision, handed down over 60 years ago. One, the court clearly felt that utilities are less risky than other business enterprises. (That's a generally accepted point of view, although utility executives feel the

concept is often carried too far.) And, two, the court also felt that the changing financial marketplace is the vital determining factor in deciding what makes a return reasonable.

In stressing the changing marketplace, the court had in mind exactly the sort of fluctuation that has occurred in the financial markets over the last decade or so. Thus, what might have been a reasonable rate of return at a time when capital was scarce may not be reasonable when capital is plentiful.

Investors and lenders aren't inclined, after all, to put money into utility stocks or bonds unless the prospective return is in line with that being offered by other investments.

Utility bonds are not considered risk free, as are U.S. Treasury notes and certain federally-insured bank or savings certificates. Consequently, lenders require an interest rate on utility bonds several percentage points above current Treasury notes.

And the return on common stock must have a premium of several percentage points more than the current cost of debt to a utility in order to attract equity investors, since a common stock purchase is a higher risk investment than a loan. As a result, utilities must pay the market rate for capital, in competition with investments in other businesses of comparable risk.

Focusing on Major Issues: Allocation of Costs and Rate Design

Once a utility commission has determined what the rate base should be, what the operating expenses are, and what the rate of return on the rate base should be, it then can add up all the dollars represented by expenses and all the dollars represented by the percentage return on rate base, and come up with the utility's total revenue requirements.

Total revenue requirements, as explained earlier, are the dollars the utility will have to realize from selling its product. It's the total amount the utility will have to collect from its customers in return for the service it is providing them, if it is to pay its expenses and have a profit left over. At this point, the regulatory commission has two final jobs to do; it must decide how to **allocate the costs of service** among the utility's various *classes* of customers and it must devise a **rate structure** or **rate design.**

When a utility proposes a rate change, it also proposes a cost-allocation formula and a rate design. The commission will review these proposals and often take a position that differs from that of the utility; sometimes the commission will substitute its own ideas on these issues. Cost allocation and rate design are important issues both to the customers and to the utilities, and they often become areas of dispute.

Utilities are usually considered to have three classes of customers — **residential, commercial** and **industrial** —

and the costs of serving each are different. Generally speaking, widely dispersed residential customers, each using relatively small amounts of gas or electricity but needing peak amounts on extremely cold days or for air conditioning loads on extremely hot days, are more costly to serve than large industrial customers, who, for instance, have relatively stable demand for gas or electricity and who take it in consistently large amounts.

In determining the rates each class of customer will pay, utilities and regulatory commissions normally have sought to reflect in rates the differing costs of serving the different classes of customers. The standard rule has been to prevent **undue discrimination** or **preference** among the customer classes. However, during periods of rapidly rising utility rates, commissions often seek, for understandable political reasons, to shift a part of the cost burden that might normally be borne by residential customers to industrial and commercial customers. Industrial and commercial customers resist this, of course, and in many instances so do the utilities. That's because the utilities often face much more competition in the industrial and commercial markets from other fuels, and shifting costs through rates to these markets may adversely affect total sales. In the utility business — where economies of scale are important — declining total sales result in increases in unit costs. Thus, residential customers ultimately may be hurt when industrial sales decline. This is an important and often overlooked factor.

Once allocation among classes is determined, allocation of costs within classes is done, usually based on the amount of gas or electricity a particular customer uses. This allocation of costs within classes is called **rate design.**

Traditional rate design has used a method called **declining-block rates** to reflect the lower unit costs of serving those customers using large amounts of energy. In the interests of conservation, though, this traditional system has been modified somewhat in recent years with the use of **straight-line rates,** which charge the same unit costs to all customers, or a variety of methods using **inverted rates,** which means that certain users taking large amounts of gas or electricity would pay, up to a point, more per unit of energy used than they would if they used smaller amounts.

Numerous nontraditional approaches to rate design have been tried in recent years, with mixed degrees of success. Many states use what are called **lifeline rates,** with costs disproportionately reduced for small users on the theory that this will aid low-income residential customers. Unfortunately, that is not always the case. In gas rates, for instance, low-income consumers may actually use more gas than middle-income or wealthy residential customers because they have older, less-efficient gas equipment or poorer insulation in their homes.

However, other recent rate design approaches have been

recognized by regulators as being appropriate, largely in the industrial and commercial markets. Among these are flexible rates to encourage economic development in underdeveloped areas or, for example, to encourage increased use of cogeneration. (Cogeneration is the production of both electrical/mechanical and thermal energy from a single primary energy source. This generally is a more efficient use of energy resources.)

Natural gas utilities also increasingly are utilizing what are known as transportation rates, which cover only the cost of delivering gas. The gas itself may have been purchased, for example, directly from a producer by a third-party large industrial user.

In any case, it is clear that costs must be allocated — among different customer classes and within each customer class. This is difficult enough just from the technical and accounting standpoints. Although many numbers and formulas may be involved, cost allocation and rate design are not exact sciences. Many technical judgments have to be made and any judgment can be questioned and debated. It becomes even more difficult when what are essentially public policy or sociopolitical issues enter the picture.

IV. Point of View: Judging a Rate Case

When the news media report rate cases — either applications for rate increases, rate case decisions, or hearings — there are usually three numbers that stand out. They are: The total dollar increase in revenues that the utility is seeking (the headline says, "Utility Seeks $50-Million Rate Hike"); the percentage increase in revenues sought ("Utility Seeks 10-Percent Rate Increase"); and the impact of the rate increase on the average residential customer ("Rate Hike Will Cost Consumer $5 a Month").

All three numbers are basic to any rate increase, and the last is particularly important since it answers, from the reader or listener perspective, the question: "What does it mean to me?"

Frequently unreported, however, is what the rate increase means to the utility. The dollar value of the revenue increase and even the percentage increase in revenues do not explain adequately the utility's application. Above all, if there's any point that should be made in this booklet, it is this:

The reasonableness of any rate increase requested or any rate hike approved can only be judged properly in terms of the utility's rate of return. And the reasonableness of any given rate of return can realistically be judged in light of the utility's cost of capital — what it must pay in the marketplace to acquire financing through equity and debt.

Issues of "return" and "cost of capital" are extremely difficult to explain in a space as short as the typical newspaper story and even harder to deal with in a radio or television news report. And that probably is why these issues are not often raised in the media.

Nevertheless, from the utility's point of view, these are critical issues. And they are factors the public should understand.

Rates of return in the utility business have not been high in recent years, compared with the cost of capital. Indeed, rates of return for utilities have not been high compared with those for many other businesses.

Point of View: The Financial Squeeze and Future Needs for Capital

In the end, every utility rate case centers on the ultimate determination of "just and reasonable rates that are nondiscriminatory." It is not surprising, then, that there have been difficulties in adjusting the regulatory process to the problems and pressures resulting from inflation.

The economies of scale that helped hold down rates or even reduce them in the period between 1946 and 1960 do not apply during periods of high inflation. Utilities that paid 3 or 4 percent on 20- to 30-year bonds sold in the 1950s paid as much as 15 to 18 percent for long-term debt capital in the early 1980s. These rates have dropped in more recent years as inflation and interest rates in general have declined. But, when there is uncertainty about future inflation and interest rates, investors are less willing to buy bonds maturing 20 or 30 years down the road. During periods of high interest rates and inflation, utility financing often falls in the 10- to 15-year time span, with guarantees against early redemption usually pledged for at least the first five years.

All of these factors imposed a geniune financial squeeze on utilities, adversely affecting their ability to plan prudently.

What complicates the commissioner's task and what dismays utility managements, is that they are dealing with a moving target. By the time a final rate order is issued, anywhere from 9 to 11 months, or more, have elapsed since the end of the test year. Inflation — whether at a relatively low or high rate — has continued in the interim, so that by the time the order is issued, the newly authorized return on investment already is outdated, and the game of catch-up must begin. As a result of this, inflation is always a problem and utilities are very often not able to earn their allowed rates of return. Actual profitability often falls short of allowed profitability. This results in a continuous erosion of the shareholders' return and the financial health of the utility.

In order to deal with this **"regulatory lag,"** some commissions have allowed projections of expected cost increases into what is known as a **future test year.** But this is far from universal policy.

All of this is of more than academic interest to the public, which depends on jobs, food and vital services that, in turn, depend on reliable utility services. Without electricity, gas, water and telephone service, our highly industrialized society would come to a grinding halt. And unless utilities are

permitted adequate earnings — earnings that allow them to compete on equal terms for the investor's dollars with other enterprises and with the federal government — those utility services are certain to deteriorate.

The gas industry alone expects to spend upwards of $132 billion (in 1985 dollars) in the period 1985-2000 for capital investments. Utilities, if granted reasonable rates of return by regulatory commissions, will be able to raise the capital they require. Thus, they will be able to provide the quality service the nation's growing population must have to maintain its high standard. That's why it is important that the ratemaking process is understood by all concerned, especially the consumer.